

a1 2. (Amended) The device for cooling electronics of claim 1 wherein the wick structure comprises a first wick structure lining the inside of an outer wall, a second wick structure lining the inside of an inner wall, and a communicating wick structure that periodically connects the first and second wick structures.

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#### **REMARKS**

Claims 1-21 are pending in the application. Claims 5, 7-9, 12-15 and 21 are withdrawn from consideration. Claims 1-4, 6, 10, 11, and 16-20 stand rejected under one or more of 35 U.S.C. §§ 102, 103, and 112. In addition, the drawings have been objected to under 37 C.F.R. § 1.83(a). Claim 2 has been amended as shown in the attached appendix. In view of the amendments and the following remarks, Applicants respectfully request reconsideration of the Examiner's rejections and objections.

#### **DRAWINGS**

The Examiner objected to the drawings under 37 C.F.R. § 1.83(a), because according to the Examiner, the wick (110, 104), tube (108) and condenser plate (114) appear to have the same cross-hatch section in figure 1B despite the fact that they are made of different material. The examiner also objected to figure 1B on the grounds that it failed to show the condenser plate and the outer wall.

Pursuant to 37 C.F.R. § 1.121(d), Applicants respectfully submit the enclosed proposed drawing corrections of Figure 1B in response to the Examiner's objections. Each of the Examiner's objections is addressed with the proposed changes shown in red. Applicants respectfully request approval by the Examiner of the proposed drawing corrections. No new matter has been added as these changes are supported in the specification.

**SECTION 112 REJECTIONS**

The Examiner rejected Claims 1-4, 6, 10-11, and 16-20 under 35 U.S.C. § 112 on the grounds that “the claimed subject matter of ‘a container having a receptacle’ is not supported in the disclosure.” In particular, the Examiner stated that, as described in the disclosure, the receptacle is connected to the container, but is not part of the container.

In the embodiment of the present invention shown in Figure 2, the receptacle (218) is integral with the container (202) and, thus, the electronic device (201) connects directly to the container (202). The term “receptacle” is expressly defined in the disclosure (p. 11, lines 13-16):

The term “receptacle” as used herein means a surface capable of receiving an electronic device. The receptacle may be part of the container as in FIGS. 2A, 2B, and 2C, or it may be an intermediate heat spreader as in FIGS. 1A and 1B.

Therefore, the term “a container having a receptacle” as used in the claims is meant to encompass both embodiments, i.e. (1) where the receptacle is integral with the container and (2) where the receptacle is held by the container. This interpretation is directly supported by the dictionary definition of the term “having.” According to Merriam-Webster’s Collegiate Dictionary (Tenth Edition) (enclosed), the term “having” means “to hold, include, or contain as a part of whole.” Accordingly, Applicants respectfully request that the Examiner remove the § 112 rejection in view of the express language of the disclosure and claims and in view of the above arguments.

The Examiner also rejected Claim 2 under § 112, because the limitations, “the outer wall” and “the inner wall,” have insufficient antecedent basis. Applicants have

accordingly amended Claim 2 to address this rejection. In particular, Applicants have deleted the word "the" preceding these limitations and added the word "an."

### **SECTION 102 REJECTION**

The Examiner rejected Claims 1-2, 4, 6, 10, 11, 16-17 and 19-20 under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 3,677,329 to Kirkpatrick (the '329 patent). Kirkpatrick teaches the use of a heat pipe (14) to provide a furnace for processing electronic devices, such as semiconductors (68). ('329 patent, col. 2, lines 14-28; col. 3, lines 43-52; col. 4, lines 10-24). In particular, a heating element, such as a heater coil (16) is wrapped around the heat pipe (14), which when heated, provides an oven within the working space (12) of the heat pipe (14). ('329 patent, col. 3, lines 10-50). The oven then may be used to uniformly heat wafers of silicone to create a semiconductor device, i.e. the semiconductor devices are placed inside the heat pipe. ('329 patent, col. 4, lines 10-20).

The present invention, on the other hand, is directed to taking heat *away* from electronic devices, such as semiconductors, rather than channeling heat *toward* the electronic device as taught by Kirkpatrick. (See, e.g., Disclosure, page 1, lines 1-12). Furthermore, the working space (12) as taught by Kirkpatrick is *inside* the heat pipe (14), ('329 patent, col. 3, lines 10-50), rather than on the *outside* of the container as taught by Applicants. (See, e.g., Disclosure, p. 7, lines 1-21). In that regard, Kirkpatrick does not teach "a container having a receptacle for receiving an electronic device." (See, e.g., Claim 1). The Examiner argues that the heater coil (16) is an "electronic device," but according to Kirkpatrick, the heater coil (16) is merely a means to heat the portion of the annular heat pipe surrounded thereby. ('329 patent, col. 3, lines 10-12).

The heater coil (16) is not an "electronic device" as that term is used in the present Application. (See, e.g., Disclosure, page 1, lines 1-12).

Furthermore, Kirkpatrick does not teach a "receptacle" on or connected to the container (14) for receiving an electronic device. As discussed above, the term "receptacle" is expressly defined in the disclosure (p. 11, lines 13-16):

The term "receptacle" as used herein means a surface capable of receiving an electronic device. The receptacle may be part of the container as in FIGS. 2A, 2B, and 2C, or it may be an intermediate heat spreader as in FIGS. 1A and 1B.

Kirkpatrick does not disclose a container having such a "receptacle" as stated in the claims.

To be anticipated, the prior art must contain each and every element of the claimed invention in a single reference. In re Spada, 911 F.2d 705, 709, 15 U.S.P.Q. 2d 1655 (Fed. Cir. 1990). Therefore, because the limitation, "a container having a receptacle for receiving an electronic device," is not disclosed by Kirkpatrick, and this limitation is contained in claims 1-2, 4, 6, 10, 11, 16-17 and 19-20 (independently and dependently), Applicants respectfully request that the Examiner remove his rejection of these claims under § 102.

In addition, Kirkpatrick does not disclose "the container also being capable of receiving a cooling conduit" (Claims 1-2, 4, and 6) or "connecting a cooling conduit to the container" (Claims 10 and 11). Instead, as discussed above, Kirkpatrick discloses *heating* electronic devices ('329 patent, col. 4, lines 10-11), not *cooling* them as discussed in the present disclosure. (See, e.g., Disclosure, page 1, lines 1-12; page 9, lines 3-10; page 11, lines 5-9). Accordingly, because these limitations are also not

disclosed or suggested by Kirkpatrick, Applicants respectfully request that the Examiner remove his rejection of these claims under § 102.

Although several other limitations stated in the claims are not disclosed by Kirkpatrick (e.g., “forcing air or liquid through the cooling conduit” (Claims 10-11), “wherein the liquid coolant does not contact both the inner wall and the outer wall simultaneously” (Claims 16-17, and 19-20), and “flow divider” (Claims 4 and 20)), Applicants feel that the above noted deficiencies of Kirkpatrick’s disclosure are adequate to address and rebut the Examiner’s § 102 rejection.

### **SECTION 103 REJECTION**

The Examiner rejected claims 3 and 18 under 35 U.S.C. § 103(a) as being unpatentable over Kirkpatrick in view of U.S. Patent No. 5,529,115 to Paterson (the ‘115 patent). The Examiner argues that “Kirkpatrick substantially discloses all of applicant’s claimed invention . . . except for the limitation of a condenser plate positioned within the container.” As discussed by Applicants above, however, Kirkpatrick does not disclose at least the limitations of “a container having a receptacle for receiving an electronic device” (Claims 3 and 18) and “the container also being capable of receiving a cooling conduit” (Claim 3). Paterson also does not disclose these limitations. Therefore, along with the rejections under § 102 discussed above, Applicants respectfully request that the Examiner withdraw his rejection of claims 3 and 18 under § 103.

### **CONCLUSION**


In conclusion, Applicants believe they have overcome each of the rejections and objections. The application is therefore in condition for allowance and early notification of allowance is respectfully requested. If, for any reason, the Examiner believes that the

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amendments and remarks do not put the claims in condition for allowance, the undersigned attorney can be reached at (312) 245-5393 to resolve any remaining issues.

A marked-up version of the changes made to the claims by current amendment is attached (Appendix A).

Respectfully submitted,

  
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APPENDIX A

**VERSION WITH MARKINGS TO SHOW CHANGES MADE**

2. (Amended) The device for cooling electronics of claim 1 wherein the wick structure comprises a first wick structure lining the inside of [the] an outer wall, a second wick structure lining the inside of [the] a inner wall, and a communicating wick structure that periodically connects the first and second wick structures.